APPENDIX H-5

Potential Rock Sources

2006

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APPENDIX H-5
POTENTIAL ROCK SOURCES

This appendix describes an evaluation of potential sources for large diameter rock to construct Barriers and Perimeter Dikes that are included in the alternatives in the Draft Programmatic Environmental Impact Report (PEIR). The evaluation included an initial reconnaissance survey and a subsequent data collection effort for three potential sites.

RECONNAISSANCE SURVEY

The reconnaissance survey was based on published and readily available information and considered both existing quarries and undeveloped land to identify a potential source capable of producing 40,000,000 to 48,000,000 cubic yards of rock fill, with diameters greater than four feet.

The goal of the reconnaissance survey was to eliminate areas where physical conditions significantly affect the ability to provide suitable material or where regulatory conditions could limit the ability to obtain rock. The survey evaluated geologic conditions, proximity to conflicting land uses, and proximity to critical habitat for threatened and endangered species.

Geologic Conditions

Two geologic maps were used to evaluate regional geology and identify areas where rock types may be suitable for construction. The California Geologic Survey (CGS, formerly the California Division of Mines and Geology) geographic information system (GIS) geologic map (Saucedo et al., 2000) is the digitized version of the Geologic Map of California, which identifies specific and detailed geologic formations. Generalized geologic data, based on rock type, was obtained from the Redlands Institute GIS Bedrock Geology data (Redlands Institute, 2002).

The Redlands Institute bedrock GIS data delineated rock types, such as granitic rock or volcanic rock. The Redlands Institute data were overlain with the more detailed CGS data to allow confirmation of the more generalized geology. Rock types were removed from consideration based upon the U.S. Army Corps of Engineers (USACE) classification system for construction material based on engineering properties (USACE, 1990). Based upon this analysis, shale, slate, schist, siltstone, limestone, breccia, conglomerate, and sandstone were removed from consideration for construction of Barriers and Perimeter Dikes.

In addition, areas identified as alluvial material were eliminated as a potential source for large rock because the material would be less than four feet in diameter. Existing literature indicates that the maximum particle size of most of these alluvial deposits is two feet (Kohler-Antablin, 1994). Using the USACE basic rock type recommendations, the following specific rock types identified in the Redlands Institute GIS geologic data were removed from further consideration during the initial screening process: continental deposit, dune sand, glacial deposits, lake deposits, landslide deposits, limestone, older surficial deposits, orocopia schist, sedimentary rock, surficial deposit, undifferentiated, undivided marine, volcanic pyroclastic rocks, and young alluvium.

It is recommended that during future analysis of selected potential sources of quarried rock, the geochemical properties of the rock be considered. For example, potential exists for a geochemical reaction between the source rock and the saline and hypersaline waters of the Salton Sea.

Proximity to Conflicting Land Uses

Potential sources of rock or transportation routes to the sources could conflict with protected lands and community lands uses. The reconnaissance survey evaluated potential conflicts with protected lands as a first step. During subsequent analyses, conflicts with other land uses should be evaluated.

State and National Parks

Several large State and national parks are located in the Salton Sea region, including Joshua Tree National Park and Anza-Borrego Desert State Park. The permits required to quarry and transport rock within these parks may be difficult to obtain because quarry activities are generally inconsistent with the management goals of the parks. Acquisition of permits for quarry operation requiring significant activity in a park would probably be extremely difficult to obtain because of the unique characteristics of each park. Therefore, lands within the State and federal parks within the region were removed from further consideration as potential sources of quarried rock.

U.S. Department of Defense Land

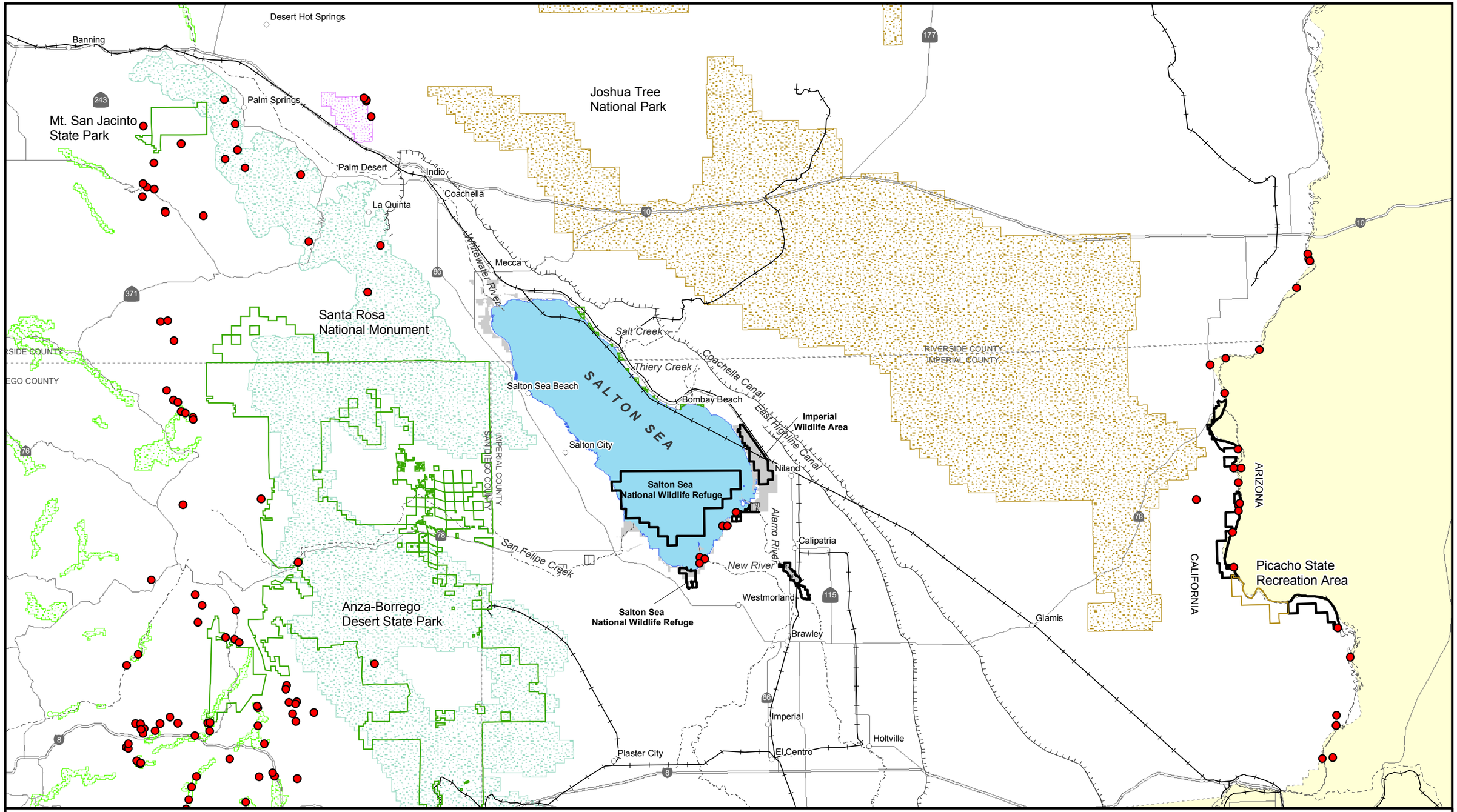
The Chocolate Mountains Aerial Gunnery Range, an active U.S. Marine Corps military pilot training facility located east of the Salton Sea, and the El Centro Naval Air Facility, located southeast of the Salton Sea on a portion of Superstition Mountain, are active military sites. Quarrying activities may conflict with military activities. Therefore, both sites have been removed from further consideration as potential sources of quarried rock. It is recognized that a previous study completed by the U.S. Department of the Interior and the Resources Agency (DOI and Resources Agency, 1974) discussed use of the Chocolate Mountains Aerial Gunnery Range in coordination with military operations. If this is acceptable to the federal agencies, this area should be reconsidered.

U.S. Department of the Interior Land

The Santa Rosa and San Jacinto Mountains National Monument, established in 2000, encompasses the Santa Rosa Mountains to the northwest of the Salton Sea. The legislation authorizing the creation of the monument provides for the continued development of mineral rights on existing private property, however, development probably would need to be consistent with goals of the Santa Rosa and San Jacinto Mountains National Monument. Limited data are available on the Santa Rosa mining area south of Palm Desert and it was assumed for the PEIR that potential rock sources would be located on private property or on lands that are currently owned by the U.S. Department of the Interior, Bureau of Land Management (BLM). These properties would need to be transferred to private property owners if quarries are developed in the future. Due to these complexities and potential delays, siting a new rock quarry or mine on BLM land was considered to be less favorable than siting a facility on non-BLM land.

Proximity to Critical Habitat

Areas of critical habitat for species listed under the federal Endangered Species Act and recorded sitings of State or federal threatened or endangered species are shown in Figure H5-1. The critical habitat data were obtained from GIS data provided by the Redlands Institute and were originally developed by the United States Fish and Wildlife Service (Service) (Redlands Institute, 2002). The State and federally listed threatened or endangered species data were obtained from the California Natural Diversity Database (CNDDB, 2004). The reconnaissance survey focused on the following four special-status species: Peninsular bighorn sheep, the desert tortoise, the western arroyo toad, and the Coachella Valley fringe-toed lizard. The presence of critical habitat and threatened and endangered species would require extensive site-specific environmental documentation and monitoring surveys. Due to these complexities and potential delays, siting a new rock quarry or mine in these areas was considered to be less favorable than for other areas.



LEGEND

- Peninsular Bighorn Sheep Critical Habitat
- Desert Tortoise Critical Habitat
- Western Arroyo Toad Critical Habitat
- Fringe-toed Lizard Critical Habitat
- National, State Parks and Monuments
- Recreation Areas
- Threatened or Endangered Species (CA/Federal)
- Wetlands
- CDFG Land
- Managed by USFWS
- Towns and Cities
- Rivers and Washes
- Railroad
- Canal
- Interstate Highway
- Regional Highway
- County Boundary

N

0 10 Miles

FIGURE H5-1
DESIGNATED CRITICAL HABITAT

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Potential Mine and Quarry Sites

The locations of active and historic mines in the general source area were identified from the Redlands Institute GIS data set (Redlands Institute, 2002). These data were supplemented with the location of the proposed aggregate quarry in the vicinity of Salton Sea Beach on Torres Martinez Tribal lands, information from the CGS Surface Mine and Reclamation Act (SMARA) sites1 (CGS, 2004), the U.S. Department of the Interior, Geological Survey (USGS) database of active mines (USGS, 1998), and data compiled from CGS county mineral resources (Kohler-Antablin, 1994; Morton, 1977). Historic mining areas were identified from available mapping, primarily as clusters of historic mines, and through available literature searches.

Transport of the quarried material to the Salton Sea has the potential to impact air quality. Impacts to air quality are a function of transport vehicle type and haul distances. For this reason, undeveloped potential quarry sites were limited to an area within 20 miles of the Salton Sea. Existing quarry sites up to 50 miles from the Salton Sea were considered because the transportation routes have already been established and evaluated in previous environmental documentation.

Steep areas were considered preferable for locating potential source areas to enable exposure of rock faces during quarry development and operation. Flatter areas would require open-pit type mining operations. This would increase the excavation costs and associated mitigation costs.

Areas considered for potential source material had to be of sufficient size to supply at least 40,000,000 cubic yards of material.

Eight potential source areas were evaluated, as summarized in Table H5-1. The general locations of these areas are shown in Figure H5-2. These areas are briefly described below in alphabetical order.

Table H5-1
Potential Rock Source Areas

Source Area	Type	Distance[a] (miles)	Mapped Rock Type[b]
Chuckwalla Mountains	Historic Mining Area	25	Basaltic, igneous, metamorphic, and granitic
Coolidge Mountain	Unimproved Area	10	Granitic
Eagle Mountain Mine Area	Inactive Quarry	40	Granitic
Fish Creek Mountains	Unimproved Area	20	Granitic
Mesquite Mine Area	Active Pit mine	50	Igneous and metamorphic
Orocopia Mountains	Unimproved Area	15	Granitic and metamorphic
Santa Rosa Mountains	Historic Mining Area	35	Granitic and metamorphic
Vallecito Mountains	Historic Mining Area	40	Granitic, metamorphic, and gabbroic

[a] Straight-line distance to closest Salton Sea shoreline.
[b] Redlands Institute, 2002.

Chuckwalla Mountains Area

The Chuckwalla Mountains are a large area of basaltic, granitic, and metamorphic (gneiss) rocks located about 25 miles to the northeast of the Salton Sea (Redlands Institute, 2002). The historic mines in the area produced gold and silver with some tungsten, lead, zinc, copper, thorium, and uranium. The Red Cloud Mine was the largest mine in the area. It consisted of both open pits and shafts from which gold, silver, copper, and lead were produced up until 1940 (Kohler-Antablin, 1994). This area is located within the Chuckwalla Mountains Wilderness that was created by the California Desert Protection Act in 1994. This designation would continue to allow mining of common construction and building materials under the

Materials Act of 1947. However, access and mining operations would need to be developed in a manner that would protect habitat within the Wilderness area.

The area is near Interstate 10 and a mining railroad that extends from a main rail line near the eastern Salton Sea shoreline to Eagle Mountain Mine.

Coolidge Mountain Area

Coolidge Mountain is a small abutment that extends eastward from the Santa Rosa Mountains toward the Salton Sea. It is located about one mile west of Desert Shore and ten miles northeast of Salton City. The area offers several opportunities for source rock supply. The source area under consideration is the portion of the mountain mapped as granitic rock. Another option is on the south side of the mountain, adjacent to Wonderstone Wash, in an area identified as the Palm Springs Formation (interbedded arkosic sandstone and clay) (Morton, 1977). Although the Palm Springs Formation is an unsuitable source rock candidate, the quartz monzonite identified (Western Goldfields, Inc., 2003) adjacent to the Palm Springs Formation has strong potential. A proposed sand and gravel quarry is also being planned in the alluvium just east of the area.

Land ownership in the area consists of alternating one square mile sections of various private owners and the Torres Martinez Tribe. The Torres Martinez Indian Tribe is considering the development of an aggregate mine on Coolidge Mountain.

Access to the area is by undeveloped roads that extend from State Highway 86. There are no railroads in the vicinity.

Eagle Mountain Mine Area

The Eagle Mountain Mine is the dominant feature in the Eagle Mountain Mine area, although other smaller mines such as Rainbow End and Cactus mines are also in the vicinity. These smaller mines yielded gold, silver, copper, and iron (Kohler-Antablin, 1994).

Eagle Mountain Mine was an open-pit iron ore mine that operated from 1948 to 1983. During the life of the mine, more than 114,000,000 tons (220,000,000 cubic yards) of marketable material were extracted. Concurrently, 712,000,000 tons (1,350,000,000 cubic yards) of waste rock was extracted and remains in stockpiles at the site (Riverside County and BLM, 1997). Rock types in the Eagle Mountain Mine area are granitic, quartizite, marble, schistose arkose, ore-bearing metasediments, and intrusive bedrock (Riverside County and BLM, 1997).

The mine is accessible by a roadway from Interstate 10 and a railroad that connects to the main rail line adjacent to the eastern Salton Sea shoreline. The railroad has been damaged during previous storms and would require repair prior to use.

Environmental documentation was completed in 1997 to address the environmental issues associated with developing a municipal landfill and recycling center at the site (Riverside County and BLM, 1997).

Fish Creek Mountains Area

The Fish Creek Mountains Area is located on the eastern edge of the Superstition Mountains along the eastern boundary of Anza-Borrego State Park. Granitic rock is the main rock type within the area. US Gypsum operates a major gypsum mine located along the Superstition Fault. Mined gypsum is transported by rail from the mine to the Plaster City processing facility. No other known active or historic mines are located in the area.

Access roads in the area extend from State Highway 78 in Ocotillo Wells through Anza-Borrego State Park. A railroad spur in the area transports gypsum from the mine to the Plaster City processing facility.

Desert Hot Springs
Banning
Palm Springs
243
Mt. San Jacinto
State Park
Joshua Tree
National Park
177
Eagle Mountain Mine Area
Palm Desert
Indio
Coachella
La Quinta
Santa Rosa Mountains
10
Orocopia Mountains
Chuckwalla Mountains
Whitewater River
Mecca
86
371
Santa Rosa
National Monument
Salt Creek
RIVERSIDE COUNTY
IMPERIAL COUNTY
Coolidge Mountains
Thiery Creek
Coachella Canal
Salton Sea Beach
SALTON SEA
111
East Highline Canal
Imperial
Wildlife Area
Niland
Salton Sea
National Wildlife Refuge
Alamo River
Calipatria
Vallecito Mountains
78
San Felipe Creek
New River
Mesquite Mine Area
CALIFORNIA
ARIZONA
Picacho State
Recreation Area
Anza-Borrego
Desert State Park
Westmorland
115
Glamis
Brawley
Fish Creek Mountains
Imperial
Holtville
El Centro
Plaster City
8
76

LEGEND

- Potential Source Areas
- Towns and Cities
- Rivers and Washes
- Railroad
- Canal
- Interstate Highway
- Regional Highway
- County Boundary

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0 10 Miles

FIGURE H5-2
POTENTIAL ROCK SOURCES

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Mesquite Mine Area

The Mesquite Mine Area is located to the southeast of the Salton Sea and includes the Mesquite Mine and several other mines, including the Old Channel Mine Shaft and Rainbow Mine. Based upon available information, only the Mesquite Mine was considered for a rock source for Barriers and Perimeter Dikes.

Mesquite Mine is an active, open-pit gold mine located southeast of the Salton Sea. It is one of the top-ranked gold producing mines in California (Kohler, 2002). The mine is located near the southern base of the Chocolate Mountains, and is partially located within the Chocolate Mountain Aerial Gunnery Range. The mine is developed in alluvial deposits, which are up to 20 feet deep at the site. Pit excavation exposes the underlying granite, schist, and gneiss (County of Imperial and BLM, 2000). Two projects are ongoing, including expansion of the mine by Newmont and development of a landfill, which is now owned by the Los Angeles County Sanitation District (Los Angeles County Department of Public Works, 2003). Environmental documentation has been prepared to support expansion of the mine (County of Imperial and BLM, 2000) and the proposed Mesquite Regional Landfill (BLM and County of Imperial, 1995). The sites are contiguous and would have some overlapping operations. The landfill was permitted by the California Integrated Waste Management Board in 1997. Construction of the landfill is planned to begin in 2007 with the first waste arriving in 2008 (CRBRWQCB, 2004). Construction of a five-mile railroad spur from the railroad near the eastern Salton Sea shoreline to the landfill is included in the 1996 Record of Decision (UESPA, 1996). Waste rock from past and future operations is and will continue to be stored at the site. The mine expansion will move an estimated 242,000,000 tons of waste rock on the site (County of Imperial and BLM, 2000). Waste dumps and rinsed leach pads from the mine would be used as daily and final landfill cover (Western Goldfields, Inc., 2003). The amount of waste rock that would be used to reclaim the mine and to support the landfill is unknown. There is potential for waste rock to be available for construction activities. The amount and quality of such rock is unknown. Access roads extend from State Highway 78 into this area.

Orocopia Mountains

The Orocopia Mountains are a large, undeveloped area located immediately northeast of the Salton Sea. Rock type in the mountains is reported to be granitic and metamorphic rocks. No mines are reported to have been developed in the area and little published information is available about the specific geology. This area is located within the Orocopia Mountains Wilderness that was created by the 1994 California Desert Protection Act. This designation would continue to allow mining of common construction and building materials under the Materials Act of 1947. However, access and mining operations would need to be developed in a manner that would protect habitat within the wilderness area. The site can be accessed by the unimproved Bradshaw Road located along the Canyon that separates the Orocopia Mountains from the Chocolate Mountains. The area is also located near the railroad that extends to the Eagle Mountain Mine Area.

Santa Rosa Mountains Area

The Santa Rosa Mountains Area is located south of Palm Desert. Numerous historic mines are located in the granitic and metamorphic terrain of the Santa Rosa Mountains. Little information is available to allow the identification of the historic mines or the area in general. The area is within the newly formed 272,000-acre Santa Rosa and San Jacinto Mountains National Monument and adjacent to the Anza-Borrego Desert State Park. The BLM administers the national monument cooperatively with the U.S. Department of Agriculture, Forest Service (USFS), Department of Fish and Game (DFG), Agua Caliente Band of Cahuilla Indians, California Department of Parks and Recreation, county-city regional agencies, private land owners, and the Coachella Valley Mountains Conservancy (BLM, 2004). The area can be accessed on roads that extend from State Highway 86. There are no railroads in the area.

Vallecito Mountains Area

The Vallecito Mountains Area is located southwest of the Anza-Borrego State Park. It is an area of numerous historic gold mines. Local geology is dominated by granitic and metamorphic rocks. Little published information is available about local mine conditions and specific geology. Access roads extend from State Highway 78 into this area. There are no railroads in this area.

Need for Environmental Documentation and Permitting

Use of existing and permitted quarries and mines generally would not require environmental documentation or permitting in addition to the studies completed for specific construction activities. Development of a new quarry or mine would require separate environmental documentation and permit applications. One of the permits would be issued under SMARA which was enacted by the California Legislature to address the need for a continuing supply of mineral resources, and to prevent or minimize the negative impacts of surface mining to public health, property, and the environment. The Department of Conservation's Office of Mine Reclamation and the State Mining and Geology Board are jointly charged with ensuring proper administration of SMARA. The requirements of SMARA applies to private owners and government agencies that own and/or operate surface mines in California which disturb more than one acre or remove more than 1,000 cubic yards of material. This includes, but is not limited to: prospecting and exploratory activities, dredging and quarrying, streambed skimming, borrow pitting, and the stockpiling of mined materials (CAOMR, 2004). By way of a Memorandum of Understanding, the Department of Conservation, the BLM, and the USFS have agreed that the statutes and regulations of SMARA are applicable to lands regulated by BLM and the USFS (CAOMR, 2004).

Results of Initial Comparison

Table H5-2 summarizes the initial consideration of each of the categories considered for the eight potential sites. Further consideration of these potential sites was then conducted by assigning "yes/no" to the following four prioritization criteria: assumed federal land ownership, presence of Designated Critical Habitat, presence of threatened and endangered species, required road haul distance greater than ten miles. These four categories were estimated to represent the issues with the highest potential to affect future permitting and development of a source area in the vicinity of the Salton Sea.

The prioritization process used a simplified approach that considered a "yes" answer to any of the criteria as a negative. The source area with the least number of "yes" answers to each of the criteria received the highest prioritization. Required road haul distance was selected over straight-line distance between the source areas and the Salton Sea because preliminary investigation indicates that road haul has a significantly greater potential to affect the environment and communities in the Salton Sea vicinity than alternate transportation methods. The results of the prioritization are presented in Table H5-3.

Based on this evaluation, additional data collection and site visits were recommended for the developed Mesquite and Eagle Mountain mines and the undeveloped Coolidge Mountain Area.

Table H5-2
Potential Source Evaluation

Source Area	Assumed Land Ownership	Critical Habitat	T&E Species within 5 miles	Existing SMARA	Existing CEQA	Assumed Point of Delivery (shore)	Existing Paved Roads	Existing Rail Access	Urban Haul Required	Estimated Haul (miles)		Unmitigated Effect on Air Quality
										Road	Rail	
Chuckwalla Mountains	BLM	Yes[b]	No[e]	No	No	East	Yes	Yes	No	5	35	Low
Coolidge Mountain	Torres Martinez Tribe	Yes[c]	No[e]	No	No	West	No	No	Yes (Salton Beach)	10	-	Low
Eagle Mountain Mine Area	Private	No	No[e]	Yes	No	East	Yes	Yes	No	5	60	Low
Fish Creek Mountains	BLM	Yes[c]	No[e]	No	No	East	Yes	Yes	No	2.5	80	Low
Mesquite Mine Area	Private	No	No[e]	Yes		East	Yes	Yes	Yes (Glamis)	10	45	Low
Orocopia Mountains	BLM	Yes[b]	No[e]	No	No	East	No	Yes	No	5	20	Low
Santa Rosa Mountains	BLM	No	Yes	No	No	West	Yes	No	Yes (Palm Desert and Indio)	55	-	High
Vallecito Mountains	BLM	No	Yes	No	No	West	Yes	No	No	60	-	High

[a] If yes, the towns through which travel would be required are indicated.

[b] Desert Tortoise habitat

[c] Bighorn Sheep habitat.

[d] Low was considered to be less than 350 tons of NO_x emissions.

[e] The CNDDB database does not indicate the presence of threatened and endangered Species within five miles of these locations, however, recent habitat observations or habitat types have indicated that special status species may be present.

Table H5-3
Potential Source Area Prioritization

Source Area	Priority	Federal Land	Mapped Critical Habitat	Documented Special-Status Species*	Required One-Way Road Haul Greater Than 10 Miles
Eagle Mountain Mine Area	1	No	No	No	No
Mesquite Mine Area	1	No	No	No	No
Coolidge Mountain	2	Mp	Yes	No	No
Fish Creek Mountains	3	Yes	Yes	No	No
Orocopia Mountains	3	Yes	Yes	No	No
Chuckawalla Mountains	3	Yes	Yes	No	No
Santa Rosa Mountains	4	Yes	No	Yes	Yes
Vallecito Mountains	4	Yes	No	Yes	Yes

* Only includes federal and State listed threatened and endangered species.

DATA COLLECTION AT THREE POTENTIAL QUARRY SITES

Additional data were collected at Mesquite Mine, Eagle Mountain Mine, and Coolidge Mountain areas through field meetings and site visits, review of available existing permits and reports, and discussions with agencies. The information provided a better understanding of the availability of suitable material and environmental permitting issues. It should be noted that the focus on these sites in no way limits the possibility of other sites being considered in future project-level analyses.

On December 15 and 16, 2004, site visits were conducted to the Mesquite and Eagle Mountain mines. On January 19, 2005, two site visits were conducted with representatives of the Torres Martinez Tribe at the Tribal Headquarters in Thermal, California to discuss Coolidge Mountain. Information collected through the site visits and evaluation of other materials is summarized below.

Mesquite Mine

The Mesquite Mine is an open-pit gold mine located about 10 miles east of Glamis, California, southeast of the Salton Sea. The mine is located south of the Chocolate Mountains and the Chocolate Mountain Aerial Gunnery Range in Township 13S, Range 19E, Sections 4, 5, and 6, San Bernardino base meridian, as shown in Figure H5-3. The mine comprises about 5,200 acres (County of Imperial and BLM, 2000).

The original mining area included the Big Chief Mine (Morton, 1977). Mesquite Mine is accessed from State Highway 78 (Ted Kipf Road), which runs northeast out of Glamis. Three primary pits are present at the site (Big Chief, Rainbow, and Vista). Waste rock from historical open-pit mining operations is stored onsite in large waste dumps and leach pads. Unpaved haul roads and assorted facilities related to ore processing and carbon reclamation also are present at the site.

Mining and Other Activities

The Mesquite Mine is a conventional open-pit, heap leach mine, first operated on a large scale in 1985. The mine was acquired by Western Goldfields Company of Reno, Nevada in 2003 from Newmont Mining Corporation. The mine produced an average of about 200,000 ounces of gold/year until mid-2001. Since 2003, production has continued at between 50,000 and 60,000 ounces of gold/year from ore previously placed on the leach pads.

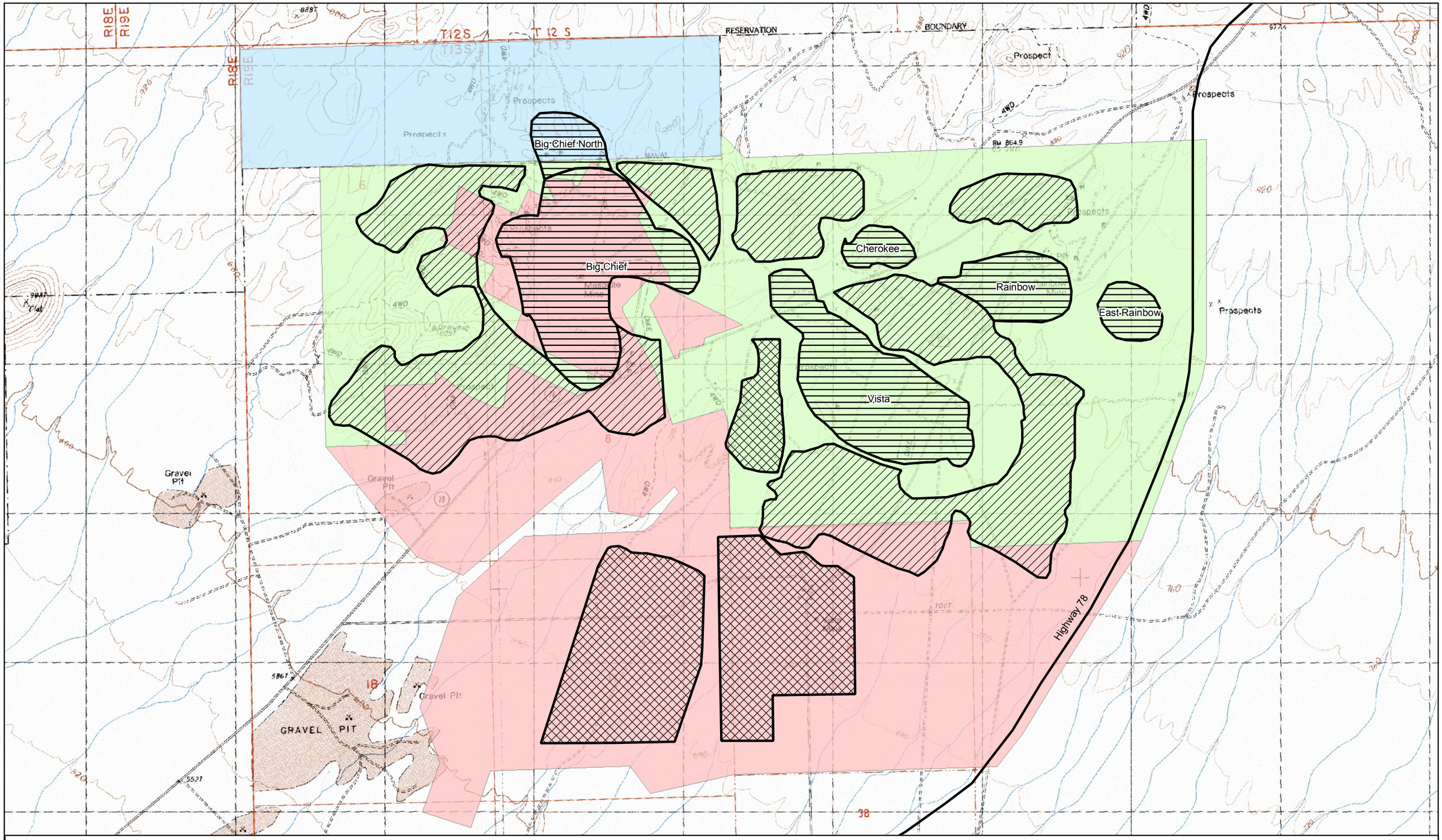

FIGURE H5-3
MESQUITE MINE

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A planned mine expansion includes excavation of about 242,000,000 tons of waste rock and 89,000,000 tons of ore (County of Imperial and BLM, 2000). The planned expansion includes extraction of ore from any of nine permitted areas on the property.

In addition to the planned mine expansion, Los Angeles County Sanitation District (Los Angeles County Department of Public Works, 2003) has completed environmental documents to support development of a regional landfill that would be served principally by a railroad (BLM and County of Imperial, 1995). The proposed Mesquite Regional Landfill would occupy about 2,300 acres within the mine property and would be developed as an aboveground area fill. The landfill was permitted by the California Integrated Waste Management Board in 1997. Construction of the landfill is planned to begin in 2007 with the first waste arriving onsite in 2008 (CRBRWQCB, 2004). The railroad spur from the Union Pacific railroad located near the eastern Salton Sea shoreline to the landfill is anticipated to be constructed in 2010 (Dodge, 2005).

Site Ownership

The Mesquite Mine property is a collection of State, federal, and private (patented) land. The portion of the property to be developed as the Mesquite Landfill is currently owned by the Los Angeles County Sanitation District.

Site Geology

The following discussion of site geology is based upon information presented in the Mesquite Mine Expansion Environmental Impact Report/Environmental Impact Statement (EIR/EIS) (County of Imperial, 2000).

Three general geologic units occur in the site vicinity: Quaternary Alluvium, Tertiary Bear Canyon Conglomerate, and Undifferentiated igneous and metamorphic basement rocks. Quaternary Alluvium is the most prevalent geologic unit exposed on the ground surface in the mine vicinity. This unit consists of a relatively thin veneer covering the eroded rock of the pediment. Exposed alluvium is comprised of deposits from three different ages, differentiated according to the degree of dissection and the development of pedogenic soils. Within this unit, intermediate and older age alluvium covers the majority of the site. The most recent alluvial unit is of Holocene age (less than 10,000 years old) and is constrained to the active channel floors. It consists of loose sands and gravels with a generally low silt content. The intermediate alluvial unit is represented by sets of perched alluvial fan surfaces that lie up to four feet above the active channels and is slightly coarser grained than the younger recent alluvium. The third alluvial unit, the older alluvium, is represented by the highest alluvial fan surfaces. This older alluvium unit, with a distinct yellowish-red color, is widespread. It consists of poorly consolidated sands and gravels. All three alluvial units were deposited as eroded materials from the Chocolate Mountains. The maximum alluvial thickness overlying the bedrock and basement rock pediment is estimated to be about 20 feet.

The bedrock unit underlying the older alluvium is the Bear Canyon Conglomerate. It is Upper Miocene (5,000,000 to 11,000,000 years old) to Lower Pliocene (3,000,000 to 5,000,000 years old) in age and consists of nonmarine sedimentary rocks with interbedded basalt flows. The sedimentary units consist of poorly sorted and variable sandstone, conglomerate, and breccia with a sandy to clayey matrix. The conglomerate unit is locally exposed in rounded hills protruding above the piedmont fans. The thickness of the conglomerate varies, but appears to be several hundred feet or more in places.

The basement rock consists of Tertiary volcanic rocks and pre-Tertiary age (greater than 65,000,000 years old) igneous and metamorphic rocks. At the surface, the rock appears to be highly fractured and jointed. At depth, these discontinuities become fewer in number and tighter because of confinement by the weight of the overlying rock. Depth to basement rock in the mine vicinity extends from the ground surface to 1,000 feet deep. The gold ore predominantly occurs in gneiss and granitic basement rock in essentially free or native form.

Existing Infrastructure

State Highway 78, a paved two-lane highway, leads from Brawley to Glamis and eastward past the Mesquite Mine toward the Colorado River. The Union Pacific Railroad is located about 6.5 miles from the mine entrance. A railroad spur is planned to connect the future landfill to the railroad tracks in Glamis by 2010 to facilitate transport of solid waste to the planned Mesquite Regional Landfill. Electric power lines and telephone are present at the onsite mine office.

Availability of Material/Rock

No topographic mapping was obtained and no estimate of the actual onsite stockpiled material was available. The majority of the heap leach pads and existing waste piles are proposed to be used for daily cover at the landfill based upon discussion with Western Goldfields during site visit in December 2004. Based on a visual reconnaissance in December 2004, the waste rock piles appear to be highly weathered rock. Much of the material is less than 3 inches in diameter with 40 to 70 percent being less than 6 inches in diameter. Some isolated boulders are present, but this size rock does not appear to exist in large quantities at this site. Future mining activities may generate more waste rock, but the timing of mining the expansion areas and the associated generation of suitable waste rock is not known. It is likely, based on documentation on Western Goldfield's website, that the majority of new waste material would be used for the landfill.

Existing Environmental Documentation and Permits/Plans

The mine currently operates under an active SMARA permit. Environmental documentation has been prepared for the proposed Mesquite Regional Landfill project and the Proposed Expansion of the Existing Gold Mine. The results of these evaluations are summarized below.

Mesquite Regional Landfill

The Draft EIR/EIS on the Mesquite Regional Landfill was released in April 1994 and the Final EIR/EIS was published in July 1995. The proposed project would include unloading and loading of Municipal Solid Waste residue containers from railroad cars, placement of solid waste into the landfill, and railroad and equipment maintenance. Landfill gas would be recovered and either destroyed by flaring or used for energy. Leachate collection and processing and wastewater treatment would also occur. Temporary storage of recyclable materials would also be provided. The proposed landfill is designed to accommodate up to 600,000,000 tons of solid waste and would have an operational life of 100 years. Solid waste would be collected from population centers in Southern California, including Imperial County, by local collection vehicles and taken to existing or future transfer stations. From these locations, solid waste would be transferred to railroad loading intermodals where it would be loaded for haulage to the Mesquite Regional Landfill. The proposed federal action for the projects includes approval of a land transfer and exchange for about 1,750 acres, rights-of-way for a railroad spur and a gas pipeline, and an amendment to the California Desert Conservation Area Plan.

The Mesquite Regional Landfill Project secured all of the required permits, including permits from the Imperial County Air Pollution Control District (ICAPCD), the California Integrated Waste Management Board, the Colorado River Basin Regional Water Quality Control Board (CRBRWQCB) and issuance of a Biological Opinion by the Service.

Mesquite Mine Expansion

The Final EIR/EIS on the Proposed Expansion of the Existing Mesquite Gold Mine was prepared by BLM and Imperial County as the lead agency under SMARA and the California Environmental Quality Act (CEQA). The Imperial County Planning Commission prepared and adopted a Final EIR/EIS (SCH No. 1998121054) for

the Mesquite Mine expansion project in 2002. The following two documents were prepared in relationship to the Section 7 Consultation process for continued operations and exploration at the Mesquite Mine:

- Biological Opinion on the Proposed Mesquite Mine Exploratory Drilling Project (PCN-98-20004-TCD), Imperial County, California (1-6-98-F-39). This July 7, 1998 biological opinion addressed the proposed exploratory drilling program north of Big Chief pit; and
- The Mesquite Mine Operations Biological Assessment for the Desert Tortoise (Gopherus agassizii), Bureau of Land Management, El Centro Resource Area, November 1991. The Biological Opinion for the Continued Operations of Gold Fields Operating Company's Mesquite Mine (BO No. 1-6-92-F-22) was issued by the U.S. Fish and Wildlife Service, Southern California Field Station, Carlsbad, on March 26, 1992 (as amended, per BLM, July 21, 1992).

As part of the approval process for the mine expansion, Imperial County approved Conditional Use Permit No. 98-0022 and Reclamation Plan No. 98-0004. The mine plan includes the mineral development of the State lands in the Chocolate Mountains leased to Western Goldfields Corporation as part of the larger Mesquite Mine expansion project. The primary term of the lease for use of the Chocolate Mountain lands is 10 years with rights of renewal for two successive periods not to exceed ten years each.

Conceptual Plan for Rock Supply

The concept at Mesquite Mine would be to make use of the available onsite stockpiled waste rock and rinsed leach pad material rather than quarrying new rock. The material would be transported to a common railroad loading point using off-road trucks, conveyors for small diameter material, electric tramways, or other transport methods. From the loading point, the material would be placed in heavy-duty railroad cars and transported to the Salton Sea in the vicinity of Bombay Beach using the planned railroad spur to Glamis and the main railroad tracks. Offloading would occur at a future railroad siding near the Salton Sea.

Required Infrastructure Upgrades

A large-scale screening, storage, and transfer facilities would be necessary to sort material into piles for use as stated above. For the purposes of this analysis, it was assumed that transport of material from Mesquite Mine to the Salton Sea would use the railroad spur to be constructed for the Mesquite Regional Landfill Project. New railroad sidings and unloading and storage areas would be required near the Salton Sea. If the Mesquite Landfill Project is not constructed, a 10 mile road to the Union Pacific Railroad would be constructed.

Special Status Species Considerations

The Mesquite Mine Expansion Draft EIR/EIS only identified the desert tortoise as a federal or State listed endangered or threatened wildlife species observed or expected to occur at Mesquite Mine. However, the Mesquite Mine Expansion Draft EIR/EIS did not evaluate the railroad corridor between the existing mine and the Union Pacific Railroad. This area is not within previously discussed critical habitats, as shown in Figure H5-3, but is located near the critical habitat for desert tortoise. Impacts of the construction and use of a railroad spur to haul solid waste are addressed in the Mesquite Regional Landfill EIR/EIS.

The potential for the additional railcars for export of waste rock to the Salton Sea would need to be addressed through consultation with the Service and DFG. DFG has designated the existing mine and proposed expansion areas of the Mesquite Mine as the D-12 deer zone and has prepared a Deer Herd Action Plan (DHAP) for this area due to the presence of burro deer. Deer hunters recognize the D-12 deer zone as providing high-quality hunting opportunities. The D-12 DHAP primarily addresses hunting activities. However, the plan also discusses specific management issues relating to deer herds that may be applicable to the export of rock.

Water Quality Considerations

The existing Waste Discharge Requirement permit was not obtained from the CRBRWQCB during this analysis. Depending on the conditions in the existing Waste Discharge Requirements permits, the loading and transport of waste material from Mesquite Mine to the Salton Sea may require additional permits from CRBRWQCB.

Air Quality Considerations

Air quality emissions in the Mesquite Mine area are regulated by ICAPCD. The Mesquite Regional Landfill Project and the Mine Expansion projects have both secured the air quality permits required for construction and operations and maintenance. ICAPCD Regulation 2, Rule 202 Exemptions, states that an Authority to Construct or Permit to Operate is not required for motor vehicles or locomotives used to transport freight. Therefore, the transport of the waste rock from the mine to the Salton Sea on the railway would not require a permit. However, depending on how the waste rock material is transported to the railcars, the loading and unloading of material may be considered an additional potential emission source and require a permit from the ICAPCD.

The ICAPCD federal operating permit requirement (ICAPCD Rule 900) is enacted if a facility has the potential to emit more than 100 tons/year after Best Available Control Technology is implemented. Only those emissions above 137 pounds/day would require offsets. If associated with a federal action in this nonattainment area, all emissions would need to be included in any analysis of applicability of, and compliance with, General Conformity requirements.

A determination of additional air quality permit requirements would require a specific material loading and unloading method, in conjunction with a detailed review of existing permits.

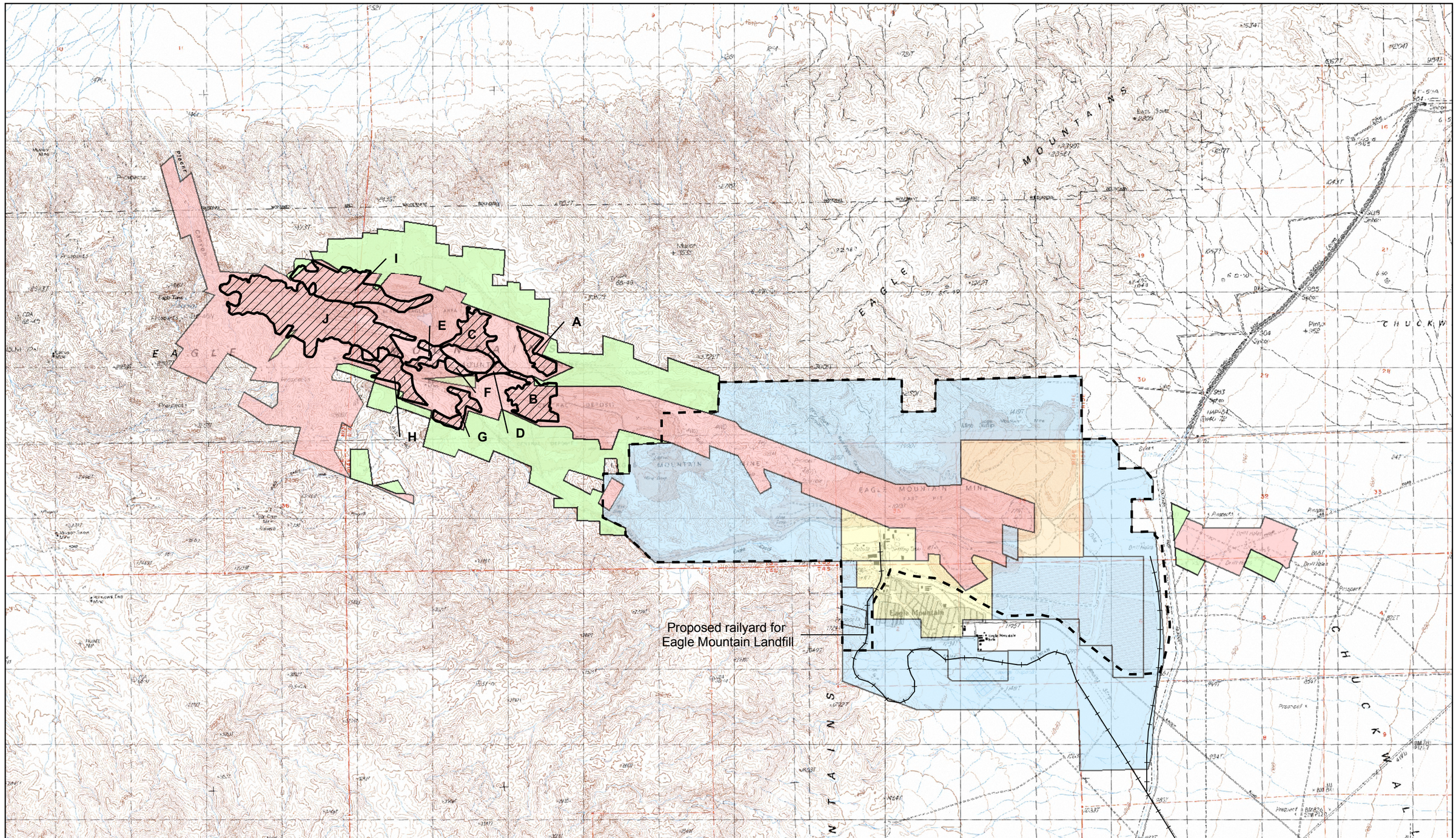
SMARA Considerations

Imperial County is the local enforcement agency for SMARA. Under SMARA, there are no specific requirements pertaining to the export of waste rock material if removal of the material does not compromise the planned reclamation for the site and the mine is under an existing active permit. Currently, Mesquite Mine is operating under an active permit and the removal of existing waste piles would not affect reclamation plans, therefore, no permit under SMARA is anticipated. (Wideen, 2005).

Eagle Mountain Mine

Eagle Mountain Mine is a former iron-ore mine located northeast of the Salton Sea. An area map of the site is shown on Figure H5-4.

The mine is located in Township 4S, Range 14E, Sections 1 and 2, Township 4S, Range 15E, Sections 4, 5, and 6, Township 3S, Range 14E, Sections 34, 35, and 36, and Township 3S, Range 15E, Section 31. The current site consists of three main pits (Eastern Pit, Central Pit, and the Black Eagle Pit) and numerous scattered waste rock piles. Unpaved haul roads are present across the property. The adjacent community of Eagle Mountain is currently small. However, Eagle Mountain included more than 300 homes, schools, offices, and other buildings when the mine was in operation. Most of these buildings are present but closed. Power, water, and telephone service is present at the mine.



Legend

- Camp Site Patent
- Fee simple land
- Unpatented Mining Claim
- Patented Mining Claim
- Section36 Fee Land
- Waste Rock Piles
- Proposed Eagle Mountain Landfill
- Railroad

N

0 4,000 Feet

SCALE IS APPROXIMATE

FIGURE H5-4
EAGLE MOUNTAIN

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Mining and Other Activities

Eagle Mountain Mine was operated by Kaiser from 1948 to 1983. During the life of the mine, more than 940,000,000 tons of material were extracted from the site, including 712,000,000 tons of coarse and plant tailings (Kaiser, 2005). Prior to 1965 the raw ore was shipped by rail to steel mills at Fontana. After 1965 the ore was formed into pellets at the mine site and shipped by rail to Fontana. Mining occurred concurrently at three pits depending on the type of ore needed at the Fontana mills. The ore was hauled in 100-ton ore cars with 100 cars and three power units/train (Kaiser, 2004).

A municipal landfill and recycling center is planned for a portion of the property (Riverside County and BLM, 1997). Solid waste from Los Angeles, Riverside, San Bernardino, and Ventura counties would be transported to the site by railroad and haul trucks.

Site Ownership

About 9,149 acres of the Eagle Mountain Mine property are owned by Kaiser (Kaiser, 2004). In addition, BLM has transferred about 3,481 acres to Kaiser, much of which was disturbed by past mining operations and is subject to unpatented mining and mill site claims currently held by Kaiser. In exchange for this land, BLM acquired about 2,846 acres of land, including areas containing desert tortoise and desert pupfish habitat. A portion of the land exchange is related to a portion of the right-of-way for the railroad as related to the Eagle Mountain landfill project. There is another right-of-way related to the use of the railroad to haul rock.

In response to the land exchange, there was litigation in connection with the Eagle Mountain landfill project. The U.S. District Court for the Central District of California, Eastern Division issued a decision on this litigation in September 2005. The decision has been appealed to the U.S. Ninth Circuit Court of Appeals. The results of the litigation could affect the use of the railroad for hauling solid wastes to the landfill. However, due to the previous right-of-way, the railroad can be used for hauling rock (Kaiser, 2006).

Site Geology

The following discussion of site geology is based upon information presented in the Eagle Mountain Landfill and Recycling Center EIR/EIS (Riverside County and BLM, 1997) and the *Report on the Geology of Eagle Mountain Mine* (USGS, 2001).

The geology of the Eagle Mountain area is complex, and was traditionally considered to be a skarn deposit formed by the intrusion of granitoid rocks into older carbonate-bearing sequences. Basement rocks beneath the site are believed to be gneissic, which vary from massive coarse-grained granitoid rocks to finely layered gneiss. Locally, the basement rocks are altered to granular quartz rock. Meta-sedimentary rocks and a series of intrusive igneous dikes also are present. The meta-sedimentary rocks consist of quartzite, meta-arkose, marble, and ore zone. Igneous rocks include quartz monzonite (adamellite), diorite, monzonite porphyry, grandiorite, and granite. The most voluminous intrusions are Jurassic quartz monzonites, which form branching sills from tens to hundreds of meters thick.

There are also some sedimentary rocks, such as conglomerate, and surficial unconsolidated deposits that consist of sands, gravels, and cobbles.

Existing Infrastructure

The mine is accessible by roadway from Interstate 10. A 52-mile railroad spur extends to the mine from the Union Pacific Railroad near the eastern Salton Sea shoreline at Ferrum. The railroad spur has been damaged during storms in 2002. Kaiser indicated that the damage could be repaired within 10 to 12 months (Kaiser, 2006). Unpaved roads exist throughout the mine area.

Availability of Material/Rock

More than 712,000,000 tons of waste rock has been removed from the pits. Most of the waste rock is stockpiled at the site, as shown in Figure H5-5 (Riverside County and BLM, 1997). Of the total stockpiled waste rock, about 165,000,000 tons are estimated to exist in the west end property outside of the 4,600 acre site of the proposed landfill (Kaiser, 2004). Kaiser indicated during the 2004 site visit that this waste rock would be available.

The large waste rock stockpiles were created by dumping waste rock (overburden) into individual piles from large rock trucks that were filled using electric shovels. To provide a drivable surface for the trucks, crushed gravel was dumped in and around the piles to create temporary roads. The individual rock piles were pushed around by dozer to form relatively level, large flat-topped "terraces" of waste rock. Thus, each large terrace, or waste rock pile, would be composed of hundreds of reworked individual dump piles. The dump piles were pushed out over the edge of the terraces to grow the piles horizontally. The overall effect of the waste rock placement is a series of large, flat-topped, rocky terraces with steeply sloping sides, as shown in Figure H5-6. The angle of repose of the pile edges is estimated to be between 30 and 35 degrees from the horizontal. Visual inspections revealed that most of the larger boulders appeared to roll down to the bottom of the sloped faces. The side-casting of materials also resulted in dipping stratified layers of material parallel to the outer slopes. The total thickness of the rock piles is estimated to be as much as 330 feet where major canyons and tributaries were filled with the waste rock.

The material appears to be sound durable rock. Several waste piles in the west end appear to contain rock up to about six feet in diameter with most of the material smaller than three feet in diameter. The visible portions of the waste piles with hard rock contain a wide range of sizes from large boulders to sand. To segregate the larger boulders from the sand and cobbles, sorting on the ground or screening would be required. Uniformly sized gravel is also present in some piles. Silt and clay may be available in some pits that were lined with sludge from the iron ore processing operations. Kaiser has performed a number of laboratory test programs on samples of the aggregate taken from waste piles across the Eagle Mountain property. Estimated quantities of rock contained in each area of the west end are summarized in Table H5-4 (Kaiser, 2004).

Table H5-4
Waste Rock Piles at Eagle Mountain Mine

Waste Rock Pile[a]	Area (acres)	Quantity (tons)	Estimated Volume (cubic yards)[b]
A	45	1,103,000	657,000
B	63	17,382,000	10,346,000
C	78	3,790,000	2,256,000
D	8	1,203,000	716,000
E	33	385,000	229,280
F	11	2,561,000	1,524,000
G	52	3,917,000	2,331,000
H	83	13,968,000	8,314,000
I	162	34,543,000	20,561,000
J	394	86,612,000	51,555,000
Total	929	165,464,000	98,489,000

[a] Designations for areas shown in Figure H5-8
[b] Volume estimated using 1.68 tons/cubic yard (Roberts, 2005b)

FIGURE H5-5
ROCK IN WASTE ROCK PILE AT EAGLE MOUNTAIN MINE

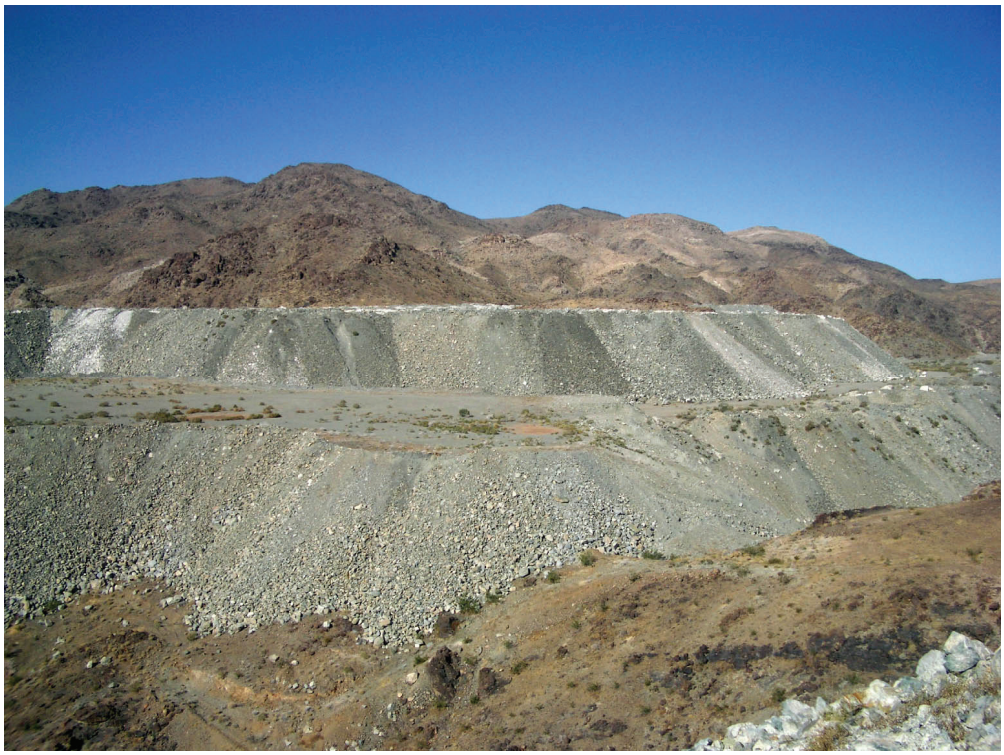


FIGURE H5-6
TYPICAL WASTE ROCK PILE AT THE WEST END OF THE MINE

Results from Additional Field Investigations

A more detailed field exploration program was conducted at Piles I and J at the West End of the Eagle Mountain Mine because these piles were estimated by Kaiser to contain the largest quantity of large diameter boulders. The field exploration program included:

- Drilling, logging, and sampling eight core borings at selected locations to estimate the thickness of the rock piles, to characterize the gradation and lithology of the material contained within the piles, and to collect samples for laboratory testing;
- Digital videologging the boreholes using a corehole optical borehole logger (COBL) probe;
- Conducting a geophysical exploration program across the waste rock piles;
- Conducting surface waste rock pile observations to evaluate dumped rock gradation, durability, and lithology;
- Logging vertical exposures created by erosional processes in the waste rock piles to evaluate the gradation and stratification within the waste rock piles; and
- Performing laboratory testing for rock durability, Atterberg Limits, sieve analysis, and other geophysical properties on selected samples obtained from the borings and from the surface of the waste rock piles, and bulk samples from surface locations and erosional gullies.

The field investigation determined that Piles I and J contained about 60,000,000 cubic yards of waste rock material. As summarized in Table H5-5, most of the waste rock in Piles I and J was less than 1-foot in diameter. Extensive amounts of sand and gravel also were present. The laboratory testing conducted on samples from the borings and waste rock pile surface samples indicated generally good durability and resistance to weathering under submerged high salinity conditions. Material should be considered suitable for use in Salton Sea construction.

Table H5-5
Estimated Gradation of Waste Rock in Piles I and J

Source	Sand and Gravel (Less than 3-inch diameter)	Cobbles (3 to 12 inches)	Small Boulders (12 inches to 3 feet)	Large Boulders (Greater than 3 feet in diameter)
Borings/COBL	45%	50%	4%	1%
Geophysics	90%	9%	0.7%	0.3%
Surface Pile Mapping	40%	35%	20%	5%
Erosional Gully Mapping	65%	25%	8%	2%
Overall	43%	50%	5%	2%

The field investigation also included a detailed analyses of the damage along the Eagle Mountain Railroad. Numerous places were observed along the railroad track where the embankment had been washed out by flash floods, or flood deposits or debris had buried the track. This damage was most prevalent between Mileposts 14 and 28 where the railroad alignment follows Salt Creek Wash. Flash floods and debris flows from numerous tributaries have buried or washed out the railroad tracks. The embankment was eroded in at least 15 locations along the railroad in this area. In some areas, portions of the track were suspended in mid-air as a result of embankment erosion. The existing culvert inlets were plugged in several locations, and the embankments at the culvert outlets were severely eroded, which left

the culverts exposed to corrosion and damage. Near Mileposts 15 and 17, the tracks had been completely buried by up to 35 feet of sediment deposited by debris flows from the tributary canyons.

Existing Environmental Documentation and Permits/Plans

An EIR/EIS was completed for the Eagle Mountain Landfill and Recycling Center Project (BLM and County of Riverside, 1997). The EIR/EIS evaluates a proposal by Mine Reclamation Corporation and Kaiser Eagle Mountain, Inc. to develop a Class III nonhazardous municipal solid waste landfill on a portion of the Eagle Mountain Mine. The proposed project also included the renovation and repopulation of Eagle Mountain Townsite and a Specific Plan, General Plan Amendment, Change of Zone, Development Agreement, Revised Permit to Reclamation Plan, and Tentative Tract Map. As previously discussed, the proposed project included a land exchange, involving about 3,481 acres of public land, and application for two rights-of-way with the BLM. A court ruling in May 1999 upheld the adequacy of the document.

A significant portion of the existing Eagle Mountain Mine was operating prior to the passage of SMARA; and, therefore is not regulated under SMARA. The remainder of the site is operating under an active SMARA permit, although the mine is currently inactive.

Conceptual Plan for Rock Supply

The concept considered in this analysis would be to use available stockpiled waste rock material, not to quarry new rock. The material would be transported to a common rail loading point using off-road trucks, conveyors (for the finer fraction of the material), electric tramways, or other transport methods. From the loading point, the material would be placed in rail cars and transported to Ferrum near the Salton Sea. Offloading would occur at a future railroad siding near the Salton Sea.

Required Infrastructure Upgrades

The waste rock is about 11 miles from the existing Eagle Mountain Railroad loadout point. Large rock trucks would be used to transport the material to the loadout area, where it would be processed, if necessary, and loaded onto rail cars. Alternatively, electric motor-driven conveyors or electric ore car systems could be used for rock up to 2 feet in diameter. It may be difficult to establish an electric haul because the topography rises about 10 percent to over 2400 feet mean sea level on the existing west end haul road. To control dust resulting from operations, a combination of water trucks and sprinkler systems would be needed. There is an existing water system onsite with wells to provide non-potable water. Upgrades would be needed to the system to provide potable water.

For the purposes of this analysis, it was assumed that transport of material from Eagle Mountain Mine to the Salton Sea would use the railroad which would need to be repaired prior to use. New railroad sidings and unloading and storage areas would be required near the Salton Sea.

It was also assumed that housing for the workers at the mine could be provided within the Eagle Mountain community. Therefore, workers would not need to commute 100 miles each day to the site.

Special Status Species Considerations

The Eagle Mountain Mine railroad does pass through some federal lands, however, the Eagle Mountain Mine landfill project included the securing of a right-of-way through those lands to allow for the transport of non-mining materials. It is expected that the existing right-of-way would also apply to transport of waste rock to the Sea and no additional federal action that would trigger NEPA would be required to allow for that transport (Roberts, 2005).

A portion of the railroad from the Eagle Mountain Mine is located in an area designated as critical habitat for the desert tortoise, a federal and State listed threatened species. Under the landfill proposal to utilize

the railroad to transport solid waste, the potential impacts to the desert tortoise resulting from use of the railroad were addressed. The Service reviewed the landfill proposal and determined that use of 10 trains/day would not result in jeopardy to the desert tortoise or to the desert pupfish. If the use of rock for the Salton Sea ecosystem restoration required a federal permit or approval, a separate biological opinion may be needed.

The EIR/EIS for the Eagle Mountain Landfill reported that bighorn sheep scat was detected at the project site during surveys conducted between 1989 and 1990 and in 1995. Bighorn sheep also were observed during surveys for the 1992 EIR/EIS along the Eagle Mountain Railroad. As a result, mitigation measures were identified to protect the bighorn sheep due to use of the railroad for the landfill.

The population of bighorn sheep potentially present at the Eagle Mountain Landfill site is not part of the distinct population listed as endangered by the Service.

For the Eagle Mountain Mine Landfill project, DFG issued two permits: A Section 2081 California Endangered Species Act Memorandum of Understanding (MOU) and a Section 1603 Streambed Alternation Agreement for dry desert washes at the landfill and mine site and along access roads and the railroad spur.

Water Quality Considerations

The existing Waste Discharge Requirement permit was not obtained from the CRBRWQCB during this analysis. Depending on the conditions in the existing Waste Discharge Requirements permits, the loading and transport of waste material from Eagle Mountain Mine to the Salton Sea may require additional permits from CRBRWQCB.

Air Quality Considerations

The Eagle Mountain site is located in an area under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). Activities of loading and unloading rail cars or trucks and material handling may be subject to the SCAQMD Rule 1302 Section (ad) "Potential to Emit." A major source permit and potential offsets would be required if emissions are greater than 70 tons/year of PM_{10}, after Best Available Control Technology are implemented. A federal operating permit, issued by the SCAQMD, would be required if emissions are greater than 100 tons/year of any regulated pollutant, after Best Available Control Technology controls are implemented.

If associated with a federal action in this nonattainment area, these emissions would need to be included in any analysis of applicability of, and compliance with, General Conformity requirements.

SMARA Considerations

Riverside County is the local enforcement agency for SMARA. Under SMARA, there are no specific requirements pertaining to the export of waste rock material if the removal of the material does not compromise the planned reclamation for the site and the mine is under an existing active permit. Currently, the portions of Eagle Mountain Mine that are subject to SMARA are under an active permit and the removal of existing waste piles would not affect reclamation plans. Therefore, no further permit under SMARA is anticipated (Wideen, 2005).

Coolidge Mountain

Coolidge Mountain is the eastern-most extension of the Santa Rosa Mountains, located on the western side of the Salton Sea. A site map of the area is shown on Figure H5-7. The potential source area under consideration is located about one mile west of Desert Shores and includes Sections 7, 8, 17, 18, 19, 20, 29, and 30 of Township 9S and Range 9E. Unimproved dirt roads and mine exploration roads have been constructed in the southeastern portion of the area. Access to the area is by undeveloped roads that extend from State Highway 86.

Mining and Other Activities

No major quarries or mines are located in the Coolidge Mountain area. Several gravel and aggregate pits and processing facilities are present in the washes in Section 21. A proposed sand and gravel quarry is also being planned in the alluvium.

Site Ownership

Land ownership in the area consists of alternating one-square mile sections of private owners and the Torres Martinez Tribe. A portion of the land in Section 17 is owned by the Salton Community Service District. The entire parcel of Section 7 is owned by the Anza-Borrego Foundation.

Site Geology

The majority of the source area under consideration is mapped as containing granitic rocks. More detailed mapping defines the area as quartz monzonite (adamellite). Rock to the north and east of the granitic rock is classified as quartzite and gneiss.

Existing Infrastructure

The site is currently undeveloped. Unimproved dirt roads and tracks provide limited vehicle access to Sections 21 and 29. The remaining sections cannot be accessed by vehicles.

Availability of Material/Rock

The granitic rocks and rhyolite (Morton, 1977) have good potential for construction of Barriers and Perimeter Dikes. During the site visit, the exposed rock appeared to be hard fractured rock with less fractured rock exposed in the washes. Higher altitude portions of the potential source area were not available for access during preparation of this analysis to confirm that the granitic rocks are present at the surface and to identify the areal extent of the granitic rock. Numerous granitic rock boulders were present in the washes at the southern end of the potential source area.

Existing Environmental Documentation and Permits/Plans

No existing environmental documents, permits, or approvals were identified during the preparation of this analysis.

Conceptual Plan for Rock Supply

The concept at Coolidge Mountain would be to develop a new quarry on unimproved land either within the Torres Martinez Tribal lands and/or on adjacent lands that are privately owned. Source rock would be quarried using drill and blast techniques then transported directly to the Salton Sea utilizing off-road trucks, conveyors (for the finer fraction of the material), electric tramways, or other transport methods. Loading and unloading facilities would be required at the mine and at the Salton Sea.

Required Infrastructure Upgrades

A large-scale screening, storage, and transfer facilities at the mine would be required. For the purposes of this analysis, it was assumed that transport of material from the mine to the Salton Sea would use a railroad with unloading and storage areas near the Salton Sea. Access roads would be required near and on the mine site.

Special Status Species Considerations

All of the area considered as potential locations for a rock source area on Coolidge Mountain is within the area designated by the Service as critical habitat for the endangered Peninsular bighorn sheep. Implementation of the Endangered Species Act on tribal lands is different than in other areas. Under Secretarial Order #3206 (U.S. Department of the Interior) requires that implementation of the Endangered Species Act with respect to tribes must be accomplished in a manner that ensures that tribes do not bear a disproportionate burden for the conservation of listed species. Additionally, this order states that because of the unique government-to-government relationship between tribes and the United States, the United States and affected tribes need to establish and maintain effective working relationships and mutual partnerships to promote the conservation of sensitive species and the health of ecosystems upon which they depend. Such relationships should focus on cooperative assistance, consultation, the sharing of information, and the creation of government-to-government partnerships to promote healthy ecosystems. At this time, negotiations continue between the United States and tribes. However, tribes have not acknowledged that the Endangered Species Act applies to activities on tribal lands.

If the mine, other facilities, or access railroads or roads are not located on tribal lands, environmental documentation and permits would be required. It is possible that federal permits could require consultation with the Service and DFG related to activities that could affect the Peninsular bighorn sheep including activities on tribal lands.

Water Quality Considerations

No water quality permits would be required for activities on tribal lands that do not affect non-tribal lands.

If the mine, other facilities, or access railroads or roads are not located on tribal lands, a Waste Discharge Requirement permit could be required from the CRBRWQCB.

Air Quality Considerations

No air quality permits would be required for activities on tribal lands that do not affect non-tribal lands.

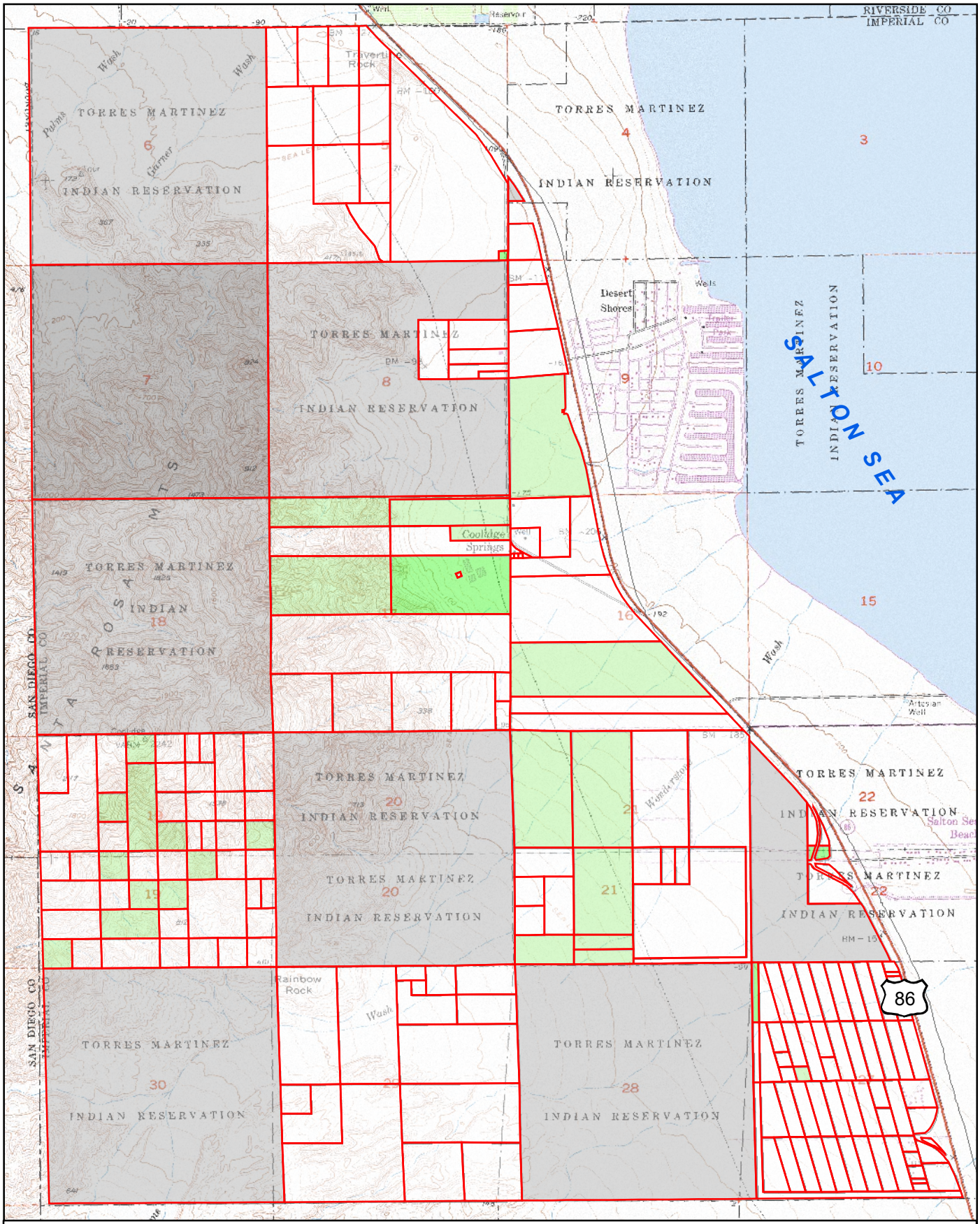
If the mine, other facilities, or access railroads or roads are not located on tribal lands, air quality emissions would be regulated by ICAPCD, as described above for the Mesquite Mine.

SMARA Considerations

Tribal lands do not need to comply with SMARA. If the mine is not located on tribal lands, SMARA permits issued by Imperial County would be required, as described above for the Mesquite Mine.

Development of Mineral Resources on Tribal Lands

The requirements for development of mineral resources underlying Indian Lands are prescribed under CFR Title 25 – Indians, Chapter 1 – Bureau of Indian Affairs, Department of the Interior, Parts 216 and 225.2. These requirements only apply if non-tribal entities or agencies develop and/or operate the quarry or mines.



LEGEND

- Misc. Corporations
- Misc. Government
- Torres Martinez Indian Tribe
- Not for profit organization
- Other Private

NOTE: Land ownership is not shown east of Highway 86.

N

0 3,000 Feet

SCALE IS APPROXIMATE

FIGURE H5-7
COOLIDGE MOUNTAIN
LAND OWNERSHIP

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Results of Analysis

The results of the analyses of the three potential rock sources are described below.

Mesquite Mine

The Mesquite Mine has been extensively developed as an open-pit gold mine with surface disturbance over most of the property. Rock quality is highly variable and the waste piles appear to contain mostly undersized highly weathered rock that is likely unsuitable as a source of durable large-diameter rock, although it may be a potential source for gravel. However, the majority of the existing waste rock at the Mesquite Mine appears to be committed as cover for the future landfill. The Mesquite Mine Expansion project has obtained all required permits for construction and operations and maintenance and may provide future rock and/or gravel.

A planned railroad spur from the landfill site could potentially be used in conjunction with the main Union Pacific Railroad to haul rock to the Salton Sea. Loading and transport of waste rock from Mesquite Mine to the Salton Sea would require additional documentation, permits, and consultation with the Service and DFG.

Eagle Mountain Mine

The Eagle Mountain Mine has been extensively developed as an open-pit iron ore mine with surface disturbance over most of the property. The mine is currently not in operation, but its permits are active. While some of the waste rock is committed as cover for the future landfill, the required quantity of suitable rock could be available onsite.

The existing Eagle Mountain Railroad could be used to haul rock to the Salton Sea following repair of storm damage. Loading and transport of waste rock from Eagle Mountain Mine to the Salton Sea would require additional documentation, permits, and consultation with the Service and DFG.

Coolidge Mountain

The Coolidge Mountain source area is in close proximity to the Salton Sea. Coolidge Mountain has no developed mines, hard rock quarry areas, or infrastructure that could be used for these operations. The required quantity of suitable rock could be available. However, only a limited amount of information and no onsite visual confirmation of the presence of suitable rock type has been completed to date.

Development of a new quarry could be on tribal lands or non-tribal property. Associated permit requirements would be different depending upon the location of the quarry. Environmental documentation and permits would be required for all facilities located on non-tribal lands, including loading and unloading facilities, railroads, or roads. Federal permits could require consultation with the Service and DFG for activities on tribal and non-tribal lands associated with critical habitat for the Peninsular bighorn sheep, air quality management, and/or water quality management for adjacent water bodies.

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